

WHAT IS CLAIMED IS:

1. A method for measuring neurotransmitter transport activity in a cell or cellular extract comprising:
 - 5 a) providing a cell that expresses a neurotransmitter transporter or a cellular extract that comprises a neurotransmitter transporter;
 - b) exposing the cell or the extract to ASP^+ ; and
 - c) measuring the transport of ASP^+ ;thereby measuring the activity of the neurotransmitter transporter in the cell.
- 10 2. The method of claim 1, wherein measuring transport further comprises measuring the kinetics of the neurotransmitter transporter.
3. The method of claim 1, wherein measuring transport is in real time.
- 15 4. The method of claim 1, wherein measuring the transport of ASP^+ is by fluorescence microscopy or using a fluorescent plate reader.
5. The method of claim 1, wherein the time resolution of measuring transport is 1
20 hour to 50 milliseconds.
6. The method of claim 1, wherein the cell is a neuronal cell.
7. The method of claim 1, wherein the cell is a blood platelet.
- 25 8. The method of claim 1, wherein the cell is a placental cell.
9. The method of claim 1, wherein the cell is a trophoblast.
- 30 10. The method of claim 1, wherein the neurotransmitter transporter is an endogenously expressed transporter.

11. The method of claim 1, wherein the neurotransmitter transporter is an exogenously expressed transporter.
- 5 12. The method of claim 1, wherein the neurotransmitter transporter is a monoamine neurotransmitter transporter.
13. The method of claim 12, wherein the monoamine neurotransmitter transporter is a norepinephrine transporter.
- 10 14. The method of claim 12, wherein the monoamine neurotransmitter transporter is an epinephrine transporter.
- 15 15. The method of claim 12, wherein the monoamine neurotransmitter transporter is a dopamine transporter.
16. The method of claim 12, wherein the monoamine neurotransmitter transporter is a serotonin transporter.
- 20 17. A method of screening for agents that can modulate the activity of a neurotransmitter transporter comprising:
- a) providing a cell or cell extract that expresses a neurotransmitter transporter;
 - b) exposing said cell or cell extract to an agent that is a candidate neurotransmitter transporter modulator;
 - c) exposing the cell or cell extract to ASP⁺;
 - d) measuring the transport of ASP⁺; and
 - e) comparing the transport of ASP⁺ in said cell to the transport of ASP⁺ in a cell or cell extract that has not been exposed to the agent;
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- 30 thereby determining if the agent is a modulator of neurotransmitter transporter activity.

18. The method of claim 17, further comprising the use of a fluorescent plate reader to provide high-throughput screening of agents.
- 5 19. The method of claim 17, wherein the neurotransmitter transporter is a norepinephrine transporter, an epinephrine transporter, a dopamine transporter or a serotonin transporter.
20. The method of claim 17, wherein said method is an *in vivo* method.
- 10 21. The method of claim 17, wherein said method is an *in vitro* method.
22. The method of claim 17, wherein measuring the transport of ASP⁺ further comprises adding a quencher and measuring the polarization of light in the presence and absence of the agent.
- 15 23. A method for the treatment of a nervous system disorder comprising administering to a patient in need thereof a neurotransmitter transporter modulator identified by the method of claim 17.
- 20 24. The method of claim 23, wherein the nervous system disorder is depression, hypertension, drug abuse, attention deficit disorder.